

U. S. Patent Application No. 10/786,984  
Preliminary Amendment Dated August 27, 2004

**Amendments to the Claims:**

The listing of claims will replace all prior versions and listings of claims in the application.

1. (Original) A method for autodiscriminating and decoding a bar code symbol that may be of any of a plurality of different types using an optical reading apparatus of the type having an image data memory and a list of parameters that specify the operating mode of said reading apparatus, said plurality of different types of bar code symbols including 1D linear bar code symbols, and 2D matrix bar code symbols, said 2D matrix bar code symbols having finder patterns that may be of any of a plurality of different types, comprising the steps of:

- (a) reading said bar code symbol with said reading apparatus to produce a set of image data therefrom;
- (b) storing the set of image data resulting from said scanning step in said image data memory;
- (c) sequentially attempting to decode said set of stored image data as a 1D bar code symbol in accordance with a plurality of different 1D decoding programs, and
  - 1.) if one of said attempts to decode said symbol as a 1D symbol is successful, outputting decoded data and then discontinuing said attempt; or
  - 2.) if said attempts to decode said symbol as a 1D symbol are not successful, discontinuing said attempts and proceeding to step (d) hereof;
- (d) sequentially attempting to decode said symbol as a 2D symbol in accordance with a plurality of different 2D decoding programs, and
  - 1.) if one of said attempts to decode said symbol as a 2D symbol is successful, outputting decoded data and then discontinuing said attempt; or
  - 2.) if said attempts to decode said symbol as a 2D symbol are not successful, or if none of said types of finder patterns is found, discontinuing said attempts;
- (e) wherein step (c) includes the steps of not attempting to decode said symbol in

U. S. Patent Application No. 10/786,984  
Preliminary Amendment Dated August 27, 2004

accordance with any one or more 1D decoding programs that are indicated to be disabled by said list of parameters; and

(f) wherein step (d) includes the steps of not attempting to decode said symbol in accordance with any one or more 2D decoding programs that are indicated to be disabled by said list of parameters.

2. (Original) The method of claim 1, in which said list of parameters includes a parameter which, when disabled, disables all of said 2D decoding programs.

3. (Original) The method of claim 2, in which said list of parameters includes a parameter which, when disabled, disables all of said 2D decoding programs.

4. (Original) The method of claim 1, in which said list of parameters includes parameters that specify corresponding scanning-decoding modes in which different respective relationships are established between said scanning steps and said decoding steps.

5. (Original) The method of claim 4, in which said scanning-decoding modes include at least one tracking mode.

6. (Original) The method of claim 4, in which said scanning-decoding modes include a plurality of non-tracking modes.

7. (Original) The method of claim 4, in which said scanning-decoding modes include at least one tracking mode and at least one non-tracking mode.

U. S. Patent Application No. 10/786,984  
Preliminary Amendment Dated August 27, 2004

accordance with any one or more 1D decoding programs that are indicated to be disabled by said list of parameters; and

(f) wherein step (d) includes the steps of not attempting to decode said symbol in accordance with any one or more 2D decoding programs that are indicated to be disabled by said list of parameters.

2. (Original) The method of claim 1, in which said list of parameters includes a parameter which, when disabled, disables all of said 2D decoding programs.

3. (Original) The method of claim 2, in which said list of parameters includes a parameter which, when disabled, disables all of said 2D decoding programs.

4. (Original) The method of claim 1, in which said list of parameters includes parameters that specify corresponding scanning-decoding modes in which different respective relationships are established between said scanning steps and said decoding steps.

5. (Original) The method of claim 4, in which said scanning-decoding modes include at least one tracking mode.

6. (Original) The method of claim 4, in which said scanning-decoding modes include a plurality of non-tracking modes.

7. (Original) The method of claim 4, in which said scanning-decoding modes include at least one tracking mode and at least one non-tracking mode.

U. S. Patent Application No. 10/786,984  
Preliminary Amendment Dated August 27, 2004

8. (Original) The method of claim 4, in which at least one of said parameters specifies a One Shot scanning-decoding mode.

9. (Original) The method of claim 4, in which at least one of said parameters specifies a Repeat Until Done scanning-decoding mode.

10. (Original) The method of claim 4, in which at least one of said parameters specifies a Repeat Until Stopped scanning-decoding mode.

11. (Original) The method of claim 1, in which said list of parameters includes a multiple symbols parameter which, when enabled, causes said reading apparatus to attempt to decode more than one symbol from a single set of image data.

12. (Original) The method of claim 1, further including the step of programming said reading apparatus so that a user may change said list of parameters by presenting a menu symbol to the reading apparatus.

13. (Original) The method of claim 1, including the further step of periodically testing for the receipt of a reprogram command generated by an external data source and, if a reprogram command is received, interrupting steps (a) through (f) to allow said external data source to modify said 1D and 2D decoding programs and said list of parameters.

14. (Original) A method as set forth in claim 1, in which said reading apparatus is a reading apparatus of the type including a menuing program that allows a user to change said list of parameters by presenting machine readable menu symbols to the apparatus, including

U. S. Patent Application No. 10/786,984  
Preliminary Amendment Dated August 27, 2004

8. (Original) The method of claim 4, in which at least one of said parameters specifies a One Shot scanning-decoding mode.
9. (Original) The method of claim 4, in which at least one of said parameters specifies a Repeat Until Done scanning-decoding mode.
10. (Original) The method of claim 4, in which at least one of said parameters specifies a Repeat Until Stopped scanning-decoding mode.
11. (Original) The method of claim 1, in which said list of parameters includes a multiple symbols parameter which, when enabled, causes said reading apparatus to attempt to decode more than one symbol from a single set of image data.
12. (Original) The method of claim 1, further including the step of programming said reading apparatus so that a user may change said list of parameters by presenting a menu symbol to the reading apparatus.
13. (Original) The method of claim 1, including the further step of periodically testing for the receipt of a reprogram command generated by an external data source and, if a reprogram command is received, interrupting steps (a) through (f) to allow said external data source to modify said 1D and 2D decoding programs and said list of parameters.
14. (Original) A method as set forth in claim 1, in which said reading apparatus is a reading apparatus of the type including a menuing program that allows a user to change said list of parameters by presenting machine readable menu symbols to the apparatus, including

U. S. Patent Application No. 10/786,984  
Preliminary Amendment Dated August 27, 2004

the further steps of periodically testing for the receipt of a reprogram command generated by an external data source and, if a reprogram command is received, allowing said external source to alter said menuing program.

15. (Original) A method as set forth in claim 1, in which said reading apparatus of the type including a menuing program that allows a user to select at least one vector processing operation by presenting a respective machine readable symbol to the apparatus.

Claims 16-21 (Previously cancelled without prejudice or disclaimer).

Claims 22-44 (Cancelled without prejudice or disclaimer).

45. (New) In a reading apparatus for scanning and decoding image data encoded in one of a plurality of types of optically encoded indicia, said apparatus being of the type including a read-write random access memory space (RAMS) and at least one erasable read only memory space (EROMS), in combination:

scanning circuit including a solid-state image sensor for scanning and storing in said RAMS image data for said optically encoded indicia;

decoding circuit for applying a plurality of decoding programs to image data stored in said RAMS to produce decoded data there from;

a parameter table, stored in at least one of said memory spaces, for storing a plurality of parameters which specify the permitted operating modes of said reading apparatus, said parameters including:

(i) a plurality of code parameters for controlling the decoding programs that may be used by said decoding circuit;

(ii) a plurality of scanning-decoding parameters for controlling the scanning and decoding activities of said scanning circuit and said decoding circuit; and

processing circuit including a menuing program for changing the parameters of said parameter table, and including a reprogramming program responsive to a program command

U. S. Patent Application No. 10/786,984  
Preliminary Amendment Dated August 27, 2004

generated by a data source external to said reading apparatus for reprogramming said apparatus;

wherein said menuing program allows a user to modify said parameter table by presenting predetermined menu symbols to said apparatus, and wherein said reprogramming program allows said external data source to control the reprogramming of said apparatus.

46. (New) The apparatus of claim 45 in which said menuing program includes a plurality of menu routines for causing said processing circuit to perform tasks corresponding to menu symbols presented to said apparatus by a user.

47. (New) The apparatus of claim 46 in which said menu routines include at least one menu routine that causes said apparatus to output information relating to said parameter table.

48. (New) The apparatus of claim 46 in which said menu symbols encode menu words of one or two types, a first type including a first op code that calls for changes to said parameter table and a second type including a second op code that calls for the performance of one of said menu routines.

49. (New) The apparatus of claim 45 further including an I/O device through which said apparatus may communicate with said external data source, wherein said external data source comprises a local host processor.

50. (New) A system for enabling a user at a local facility to reprogram a portable optical reader, said system comprising:  
a host processor having a communication port adapted for communication with said optical reader;

a host memory in communication with said host processor comprising a host read-only memory device, and a host read-write memory device;

a plurality of candidate operating programs stored in said host memory space, said each operating program having an associated list of parameters stored in a predetermined

U. S. Patent Application No. 10/786,984  
Preliminary Amendment Dated August 27, 2004

memory location of said host memory space;

reading circuit, included in said host processor, for reading one of said candidate parameter tables from said host memory and writing said to said host memory;

editing circuit for editing a candidate list of parameters which has been stored in said memory, and for creating there from and edited list of parameters;

output circuit for outputting said edited list of parameters.

51. (New) The system of claim 50, wherein said output circuit is configured to write said edited parameter table to said communications port adapted to communicate with said optical reader.

52. (New) The system of claim 50, wherein said list of parameters comprises a parameter table.

53. (New) The system of claim 50, further including a display device in communication with said host processor, and wherein said output is configured to display said edited list of parameters on said display device.

54. (New) The system of claim 50, further including a printer device in communication with said host processor, and wherein said output circuit is configured to print said list of parameters.

55. (New) The system of claim 50, wherein said output circuit includes an encoder encoding at least one reprogramming symbol configured to reprogram a parameter table of an optical reader having a decoding circuit that reads bar code symbols.

56. (New) The system of claim 50, further comprising a display device in communication with said host processor, wherein said output circuit includes creating circuit creating at least one programming symbol configured to reprogram a list of parameters of an optical reader having a decoding circuit that reads said at least one reprogramming symbol,



U. S. Patent Application No. 10/786,984  
Preliminary Amendment Dated August 27, 2004

and further wherein said output means is configured to display said at least one reprogramming symbol on said display device so that a one dimensional reader can be reprogrammed by reading said series of symbols displayed by said display device.

57. (New) The system of claim 50, further comprising a printer device in communication with said host processor, wherein said output circuit includes an encoding circuit for creating a series of linear menu symbols configured to reprogram a parameter table of an optical reader that reads said series of linear menu symbols, and further wherein said output means is configured to print said series of one dimensional symbols using said printing device.

58. (New) The system of claim 50, wherein said output circuit includes an encoder for encoding a two dimensional menu symbol configured to reprogram a parameter table of an optical reader having a two dimensional image sensor that reads said two dimensional menu symbol.

59. (New) The system of claim 50, further comprising a display device in communication with said host processor, wherein said output circuit includes an encoder for encoding a two dimensional symbol configured to reprogram a parameter table of an optical reader having a one dimensional image sensor that reads said series of linear menu symbols, and further wherein said output circuit is configured to display said two dimensional symbol on said display device so that a two dimensional reader can be reprogrammed by reading said symbol displayed by said display device.

60. (New) The system of claim 50, further comprising a printer device in communication with said host processor, wherein said output circuit includes creating means for creating a two dimensional symbol configured to reprogram a parameter table of an optical reader having a two dimensional image sensor that reads said series of linear menu symbols, and further wherein said output circuit is configured to print said two dimensional symbol using said printing device.

U. S. Patent Application No. 10/786,984  
Preliminary Amendment Dated August 27, 2004

61. (New) The system of claim 50, wherein said output means includes comparing means for comparing one of said candidate parameter tables with said edited parameter table.

62. (New) A system for enabling a user of a bar code reading device at a local facility to simulate the results of applying editing commands to a message representing a decoded message, said system comprising:

a processor;

a memory in communication with said processor having an edit command simulation subprogram stored thereon;

message receive means programmed in said processor for enabling said processor to receive a test message;

editing command receive means, programmed in said processor, for enabling said processor to receive editing commands;

command apply means programmed in said processor so that said processor applies received editing commands to a received test message to generate an edited message;

output circuit for outputting said edited message.

63. (New) The system of claim 62, wherein said output means includes display means for displaying said edited message.

64. (New) The system of claim 62, wherein said output means includes printing means for printing said edited message.

65. (New) The system of claim 62, wherein said memory space further includes a bulk storage means in communication with said processor and wherein said output means further includes means for writing said received editing commands resulting in said edited message to said bulk storage means.

U. S. Patent Application No. 10/786,984  
Preliminary Amendment Dated August 27, 2004

66. (New) An optical reading system for aiding a user of a bar code reading device at a local facility to reprogram said bar code reading device, said system comprising an optical reader in communication with a host processor, said optical reader having a reader memory, said local host processor being in communication with a host memory space, said optical reading system comprising:

a reader operating program stored in said reader memory space, said operating program having a main program stored in a first memory location of said reader memory space, and having a list of parameters stored in a second memory location of said reader memory;

a plurality of candidate operating programs stored in said host memory space, each of said candidate operating programs having at least one of either a main program and a parameter table;

selecting means included in said host processor for selecting one of said candidate operating programs for loading into said reader;

writing means, responsive to said selecting means, for writing said one selected candidate operating program into said reader memory space.

67. (New) The system of claim 66, wherein said candidate operating programs are either of a first type comprising a main program and a list of parameters, or of a second type comprising a parameter table only, and wherein said each candidate operating program includes indicating means indicating the type of operating program.

68. (New) The system of claim 66, wherein said selecting means includes means for selecting whether to load an operating program comprising a main program and parameter table into said reader, or an operating program comprising a main program.

69. (New) The system of claim 66, wherein said writing means includes preserving means for preserving said reader parameter table in said reader space when said operating program is written into said reader memory space.

U. S. Patent Application No. 10/786,984  
Preliminary Amendment Dated August 27, 2004

70. (New) The system of claim 66, wherein said list of parameters comprises a parameter table.